WHAT IS CLAIMED IS:

1. An optical interferometer, comprising:

a first optical fiber having a first end for receiving a signal input and providing a first output and a first reflective end opposite the first end;

a second optical fiber having a second output end and a second reflective end; and

an optical coupler for coupling the first optical fiber and the second optical fiber between the first end and first reflective end of the first optical fiber and the second output end and second reflective end of the second optical fiber;

wherein the first optical fiber provides a first optical path from the optical coupler to the first reflective end and back to the optical coupler and the second optical fiber provides a second optical path from the optical coupler to the second reflective end and back to the optical coupler; and

wherein the second path is greater than the first path by a delay length and the first path and the second path are each less than approximately 20 cm.

2. The apparatus of claim 1, wherein the received signal input comprises a differential phase shift keyed (DPSK) signal and the optical interferometer operates to a demodulate the DPSK signal.

3. The apparatus of claim 1, wherein the first path and the second path are each less than a length limit selected from the group consisting of 18 cm, 16 cm, 14 cm, 12 cm and 10 cm.

4. The apparatus of claim 1, wherein the delay length corresponds to approximately one bit of the modulated signal.

5. The apparatus of claim 1, wherein the coupler comprises a 50:50 coupler.

6. The apparatus of claim 1, wherein at least one of the first and second reflective ends is cleaved and coated with silver.

7. The apparatus of claim 1, wherein at least one of the first and second reflective ends is cleaved and coated with gold.

8. The apparatus of claim 1, wherein the optical interferometer is employed in a satellite communication system.

9. The apparatus of claim 8, wherein the optical interferometer the signal input is an inter-satellite signal in the satellite communication system.

10. A method of producing an optical interferometer, comprising:

providing a first optical fiber having a first end for receiving a signal input and a first output;

providing a second optical fiber having a second output end;

coupling the first optical fiber and the second optical fiber between the first end and first reflective end of the first optical fiber and the second output end and second reflective end of the second optical fiber with an optical coupler;

cleaving the first optical fiber and forming a first reflective end opposite the first end wherein the first optical fiber provides a first optical path from the optical coupler to the first reflective end and back to the optical coupler; and

cleaving the second optical fiber and forming a second reflective end opposite the second output end wherein the second optical fiber provides a second optical path from the optical coupler to the second reflective end and back to the optical coupler;

wherein the second path is greater than the first path by a delay length and the first path and the second path are each less than approximately 20 cm.

11. The method of claim 10, wherein the received signal input comprises a differential phase shift keyed (DPSK) signal and the optical interferometer operates to a demodulate the DPSK signal.

12. The method of claim 10, wherein the first path and the second path are each less than a length limit selected from the group consisting of 18 cm, 16 cm, 14 cm, 12 cm and 10 cm.

13. The method of claim 10, wherein the delay length corresponds to approximately one bit of the modulated signal.

14. The method of claim 10, wherein the coupler comprises a 50:50 coupler.

15. The method of claim 10, wherein at least one of the first and second reflective ends is cleaved and coated with silver.

16. The method of claim 10, wherein at least one of the first and second reflective ends is cleaved and coated with gold.

17. The method of claim 10, wherein the optical interferometer is employed in a satellite communication system.

18. The method of claim 17, wherein the optical interferometer the signal input is an inter-satellite signal in the satellite communication system.